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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/906,365	08/05/97	BHAT R	0646/0D205

025291
AMERICAN HOME PRODUCTS CORPORATION
PATENT SECTION
FIVE GIRALDA FARMS
MADISON NJ 07940-0874

HM22/0606

EXAMINER	
BASI,N	
ART UNIT	**PAPER NUMBER**
1646	15

DATE MAILED: 06/06/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.	Applicant(s)
08/906,365	BHAT et al
Examiner	**Art Unit**
Nirmal. S. Basi	1646

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Mar 7, 2001* .

2a) ☒ This action is **FINAL.** 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *27-61* is/are pending in the application.

4a) Of the above, claim(s) *50-61* is/are withdrawn from consideration.

5) ☒ Claim(s) *27-44* is/are allowed.

6) ☒ Claim(s) *45-49* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☒ Claims *27-61* are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☐ Notice of References Cited (PTO-892)

16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). *14*

18) ☐ Interview Summary (PTO-413) Paper No(s). _____

19) ☐ Notice of Informal Patent Application (PTO-152)

20) ☐ Other:

DETAILED ACTION

1. Amendment filed 3/7/01 has been entered.

2. Rejection of claims 4-16 and 24-26, in paper number 12 (11/7/00) is withdrawn in view of Applicant Amendment (paper number 13, 3/7/01) canceling claims 1-26 and adding new claims 27-61. This application contains new claims 50-61 drawn to an invention non-elected with traverse in Paper No. 5 (10/7/98). Claims 50-61 are drawn to the invention of Group III, and are distinct from the elected invention of Group I for the reasons of record, see paper 4, dated 9/3/98. Since applicant has received an action on the merits for the originally presented invention (Group I), this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 50-61 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03. A complete response to the final rejection must include cancellation of non-elected claims or other appropriate action (37 CFR 1.144) MPEP § 821.01.

Claim Objection

3 Claim 36 objected to because of the following informalities: "Figure 4 SEQ ID NO:2" should be written as "Figure 4, SEQ ID NO:2" in the interest of clarity.

Claim Rejection, 35 U.S.C. 112

4. Claims 45-49 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a nucleic acid comprising SEQ ID NO:1 encoding the polypeptide of SEQ ID NO:2, does not reasonably provide enablement for nucleic acids comprising a sequence encoding

an amino acid sequence consisting of amino acids 1-45 of SEQ ID NO:2 and vectors encoding said fusion protein, cells comprising said fusion protein. The, specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

While the person of ordinary skill in the art would, in light of the specification be able to make fusion/chimeric constructs and variants of the nucleic acid comprising a fragment encoding amino acids 1-45 of SEQ ID NO:2, the scope of the claims, which encompass nucleic acids encoding polypeptides and variants without disclosure of the common function of the polypeptide comprising amino acids 1-45 of SEQ ID NO:2, which is based upon a common property or critical technical feature of the genus claimed and specific mutations which can be produced which retain said common function are not enabled by the disclosure.. The instant specification fails to provide sufficient descriptive information on the function of the fragment encoding amino acids 1-45 of SEQ ID NO:2, such as definitive structural features and their relationship to function. The specification proposes to isolate "function-conservative variants" from wild type, mutant cells, heterologous organisms (page 20) and produce said variants by replacement of amino acids (page 15). There is no description, however, of the sites at which variability may be tolerated, which amino acids are to be substituted to produce functional proteins. Structural features that could distinguish the compounds in the genus from others are missing from the disclosure. Furthermore, the prior art does not provide compensatory structural or correlative teachings sufficient to enable one of skill to make, isolate , identify and use the claimed "nucleic acids encompassed without undue experimentation. T h e

estrogen receptor-β depicted in SEQ ID NO:2 of invention of instant application requires at least a ligand binding domain and may require other critical domains for receptor function. The disclosure does not disclose the afore mentioned domains or the effect of mutation on receptor function. Although constructs comprising amino acids 1-45 of SEQ ID NO:2 can be made said variants encompasses numerous alterations which may result in nucleic acids encoding proteins that are not functional or require undue experimentation to determine their functionality. Further the nucleic acids encompassed by the scope of claims may not specifically hybridize to the nucleic acid of SEQ ID NO:1 due to degeneracy of the genetic code or because of the additional nucleotides encompassed by the construct. Applicant have not disclosed how to use nucleic acids encompassed by the claims encoding non-functional proteins or nucleic acids which do not specifically hybridize to SEQ ID NO:1.

Further due to the lack of direction/guidance presented in the specification regarding the production, identification, purification, isolation and characterization of nucleic acid comprising a sequence encoding an amino acid sequence consisting of amino acids 1-45 of SEQ ID NO:2 with a disclosed common property, or critical technical feature of the genus claimed, and specific mutations which can be produced which retain said common function, the unpredictability of the effects of mutation on the structure and function of proteins (since mutations of SEQ ID NO:1 and 2 are also encompassed by the claim), and the breadth of the claim which fail to recite functional limitations, undue experimentation would be required of the skilled artisan to make or use the claimed invention in its full scope.

Accordingly, undue experimentation would be required of the skilled artisan to make or use the claimed recombinant vectors comprising the nucleic acids encompassed by claims 45 and 46 and cells containing said recombinant vectors in their full scope.

5. Claims 45 and dependent claims 46-49 rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The instant specification does not contain a written description of the invention in such full, clear, concise, and exact terms or in sufficient detail that one skilled in the art can reasonably conclude that applicant had possession of the claimed invention at the time of filing.

The claims are drawn to isolated nucleic acid having:

a) a sequence encoding an amino acid sequence consisting of amino acids 1-45 of Figure 4, SEQ ID NO:2

b) the nucleic acid of a) wherein the nucleic acid comprises a nucleotide sequence consisting of nucleotides 94-229 of Figure 3, SEQ ID NO:1.

The claims are further directed to recombinant DNA vector comprising the nucleic acid of a) and cell comprising said DNA vector. Claim 45 and dependent claims 46-49 are interpreted to encompass open ended language by the use of "having " in the claim, i.e. "having a sequence encoding" is the equivalent of stating "comprising a sequence encoding".

The specification discloses an isolated cDNA sequence, SEQ ID NO: 1 which encodes the polypeptide depicted in SEQ ID NO:2. The instant disclosure of a single distinct polypeptide, and nucleic acid encoding said polypeptide, does not adequately describe the scope of the claimed genus, which encompasses a substantial variety of subgenera including full-length, truncated, mutated, variant and fusion proteins encoded by the nucleic acids disclosed above (a and b). A description of a genus of cDNAs may be achieved by means of a recitation of a representative number of cDNAs, defined by nucleotide sequence, falling within the scope of the genus or of a recitation of structural and functional features common to members of the genus, which features constitute a substantial portion of the genus. *Regents of the University of California v. Eli Lilly & Co.*, 119 F3d 1559, 1569, 43 USPQ2d 1398, 1406 (Fed. Cir. 1997). The instant specification fails to provide sufficient descriptive information on the nucleic acid comprising a sequence encoding an amino acid sequence consisting of amino acids 1-45 of SEQ ID NO:2 or the nucleic acid comprising a sequence encoding an amino acid sequence consisting of amino acids 1-45 of SEQ ID NO:2 wherein the nucleic acid comprises a nucleotide sequence consisting of nucleotides 94-229 of SEQ ID NO:1, such as definitive structural features of the claimed genus of nucleic acids and the claims fails to disclose the functional features of the claimed genus of nucleic acids. **The common function of the polypeptide comprising amino acids 1-45 of SEQ ID NO:2, which is based upon a common property or critical technical feature of the genus claimed is not disclosed.** There is no description of the conserved regions which are critical to the structure and function of the genus claimed. The specification proposes to isolate "function-conservative variants" from wild type, mutant cells,

heterologous organisms (page 20) and produce said variants by replacement of amino acids (page 15). There is no description, however, of the sites at which variability may be tolerated, which amino acids are to be substituted to produce "function-conservative variants" and there is no information regarding the relation of structure to function. Structural features that could distinguish the compounds in the genus from others are missing from the disclosure. Furthermore, the prior art does not provide compensatory structural or correlative teachings sufficient to enable one of skill to make, isolate , identify and use the claimed nucleic acid comprising a polypeptide comprising amino acids 1-45 of SEQ ID NO:2 encompassed without undue experimentation.

An adequate written description of a nucleic acid, requires a precise definition, such as by structure, formula, chemical name, or physical properties, not a mere wish or plan for obtaining the claimed chemical invention. Accordingly, an adequate written description of a nucleic acid is more than a mere statement that it is part of the invention and reference to a potential method for isolating it; what is required is a description of the nucleic acid itself. Accordingly, the specification does not provide a written description of the invention of claims 45 and 46.

Accordingly, the specification does not provide a written description of the nucleic acids of the invention (full-length genes, nucleic acids encoding chimeric proteins or fusion proteins, and variants encompassing mutated and truncated proteins, disclosed above), and further the claims do not provide written description of the recombinant vectors comprising the polynucleotides encompassed by claims 45 and 46 and cells containing said recombinant vectors.

Claims 27-44 are allowable.

Applicant's amendment necessitated the new grounds of rejection. Accordingly, **THIS ACTION IS MADE FINAL**. See M.P.E.P. § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

Advisory Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nirmal Basi whose telephone number is (703) 308-9435. The examiner can normally be reached on Monday-Friday from 9:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yvonne Eyler, can be reached on (703) 308-6564. The fax phone number for this Group is (703) 308-0294.

Official papers filed by fax should be directed to (703) 308-4242. Faxed draft or informal communications with the examiner should be directed to (703) 308-0294.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Nirmal S. Basi
Art Unit 1646
June 3, 2001

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